

BOKUCHAVA, Mikhail Alekseyevich, prof., doktor biologicheskikh nauk,;  
OPARIN, A.I., akad., otv. red.; BUNDEL', A.A., red. izd-va,;  
PRUSAKOVA, T.A., tekhn. red.

[Biochemistry of tea and tea production]. Biokhimiia chaia i chainogo  
proizvodstva. Moskva, Izd-vo Akad. nauk SSSR, 1958. 536 p.

(MIRA 11:12)

(Tea)

*BOKUCHAVA, I. I.*

AUTHORS: Bokuchava, M. A., Doctor of Biological Sciences, 30-2-26/49  
Popov, V. R., Candidate of Biological Sciences

TITLE: Investigations in the Field of the Biochemistry and  
Technology of Tea in India (Raboty po biokhimi i  
tekhnologii chaya v Indii)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1958, Nr 2, pp. 91-91  
(USSR)

ABSTRACT: Tea industry takes the second place in the political economy  
of India. Approximately 70 % of the tea production of the  
country is produced in Assam (North-Eastern India), where  
already in 1911 the experimental station Toklay was founded,  
which also now is the main center of scientific research in  
the field of biochemistry and technology of tea in India.  
The staff numbers about 170 people. Here the scientific  
research dealing with botany and tea selection, agricultural  
technique and the protection of the tea plant and other  
problems is conducted, on which the authors report in detail.  
The station has modern equipment. An experimental plant is  
attached to the station, where experiments are performed on

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Investigations in the Field of the Biochemistry and  
Technology of Tea in India

30-2-26/49

the perfection of the production technology of tea. The experimental station has at its disposal scientific advisers in every great tea region of the country, which perform various urgent work on the spot. The experimental station Kunur (Southern tropical region) conducts work in the field of botany, agricultural technique, application of chemistry, disease- and pest control. The Technological Institute for Foodstuffs at Maysur also deals with tea problems, as well as a laboratory of the University of Calcutta.

AVAIIA BLE: Library of Congress

1. Tea-Biochemistry
2. Tea-Economic aspects-India
3. Tea-Growth-India
4. Tea-India

Card 2/2

BOKUCHAVA, M.A.

Scientific basis of a new technology in the production of black tea  
[with summary in English]. Izv.AN SSSR. Ser.biol. no.4:463-470  
Jl-Ag '58 (MIRA 11:8)

1. Institut biokhimii im. A.N. Bakha Akademii nauk SSSR.  
(TRA)

*БОКУЧАВА, М.А.; СОБОЛЕВА, Г.А.*  
BOKUCHAVA, M.A.; SOBOLEVA, G.A.

Synthesis and transformation of organic acids in tea seedlings  
[with summary in English]. Fiziol. rast. 5 no.1:70-74 Ja-F '58.  
(MIRA 11:1)

1. Institut biokhimi im. A.N. Bakha AN SSSR, Moskva.  
(Tea) (Acids, Organic)

BOKUCHAVA, M.A., SOBOLEVA, G.A., KNYAZEVA, A.M.

Transformation of tea leaf catechins brought about by high  
temperatures [with summary in English]. Biokhimiia 23 no.2  
266-268 Mr-Apr '58 (MIRA 11:6)

1. Institut biokhimii im. A.N. Bakha AN SSSR, Moskva.
  - (HEAT, effects  
transform. of catechins in tea leaves (Rus))
  - (TEA,  
heat causing transform. of catechins in tea leaves  
(Rus))
  - (PHENOLS,  
catechins in tea leaves, transform. caused by heat  
(Rus))

SHIPALOV, M.S., BOKUCHAVA, M.A., SOBOLEVA, G.A.

Using a debsutimeter in quantitative determination of catechins  
separated by paper chromatography.[with summary in English].  
Biokhimiia 23 no.3:390-394 My-Je '58 (MIRA 11:8)

1. Institut biokhimii im. A.N. Bakha AN SSSR, Moskva.  
(PYROGATECHOL, determination  
chromatography with densimetric quantitative determ. (Rus))

20 -118-6-29/47

AUTHORS: Skobeleva, N. I., Bokuchava, M. A., Knyazeva, A. M.

TITLE: Change of the Content of Volatile Aldehydes in the Thermal Treatment of Tea  
(Izmeniye soderzhaniya letuchikh al'degidov v protsesse termicheskoy obrabotki chaya)

PERIODICAL: Doklady Akademii Nauk SSSR, 1958, Vol. 118, Nr 6, pp. 1153-1154 (U.S.S.R.).

ABSTRACT: The application of heat-treatment has been investigated for years (references 1 - 5). A new manufacturing process of black tea due to which both the quality and storage property are substantially improved, was proposed as result of these investigations. The new method is based on the reduction of the ferment action and on the increase of the thermophysical processes. In this case the torsion-time is reduced by 50%, the second phase of fermentation is eliminated and replaced by a heat-treatment. The tannin-content of tea can be increased by 3 - 4% and its aroma and taste substantially improved. The quality was increased by 0,5 to 0,75 points, compared with the control samples. Since the volatile aldehydes are of importance for the aroma of the tea,

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Change of the Content of Volatile Aldehydes in the  
Thermal Treatment of Tea

20-118-6-29/43

their change of content was investigated. Green tea and black tea produced according to the new technology - after heat-treatment - were investigated. Table 1 shows that during thermal treatment the aldehyde content increases both with green and black tea. An organoleptic examination showed that the heat-treatment gives an agreeable taste and aroma to the tea. A second test-series (table 2) confirmed the above results again. There are 2 tables, and 5 references, all of which are Slavic.

ASSOCIATION: Institute for Biochemistry imeni A. N. Bakh, AS USSR  
(Institut biokhimii im. A. N. Bakha Akademii nauk SSSR)  
PRESENTED: November 15, 1957, by A. I. Oparin, Academician.  
SUBMITTED: November 14, 1957.

Card 2/2

BOKUCHAYA, M.A.

Scientific principles of new methods for producing black tea.  
Biokhim, chain, proizv. no. 7:5-11 '59. (MIRA 13:5)

1. Institut biokhimii im. A.N. Bakha AN SSSR, Moskva.  
(TEA)

BOKUCHAYA, M.A.; KNYAZEVA, A.M.; SKOBELEVA, N.I.; DMITRIYEV, A.F.;  
PRUIDZE, V.G.

Results of production testing of the new technology for black  
tea. Biokhim.chain.proizv. no.7:12-24 '59. (MIRA 13:5)

1. Institut biokhimii imeni A.N. Bakha AN SSSR, Moskva.  
(TEA)

BOKUCHAYEVA, M.A.; POPOV, V.R.

Studying amino acids in the leaves of Georgian and Indian tea by  
paper chromatography. Biokhim.chain.proizv. no.7:111-113 '59.  
(MIRA 13:5)

1. Institut biokhimii im. A.N. Bakha AN SSSR, Moskva.  
(TEA) (AMINO ACIDS) (CHROMATOGRAPHIC ANALYSIS)

BOKUCHAVA, M.A.; BERDYIEVA, S.I.

Bacteriostatic and bactericidal properties of the different fractions of tea tannin with regard to certain bacteria of the enteric group. Biokhim.chain.proizv. no.7:209-213 '59. (MIRA 13:5)

1. Institut biokhimii im. A.N. Bakha AN SSSR, Moskva i Turkmenskiy institut epidemiologii i mikrobiologii, Ashkhabad.  
(TANNIN) (TEA)  
(INTESTINES--BACTERIOLOGY)

BOKUCHAVA, M.A.; SKOBELEVA, N.I.; KNYAZEVA, A.M.

Increasing the vitamin P value and improving the quality of tea.  
Biokhimiia 24 no.2:371-375 Mr-Apr '59. (MIRA 12:7)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R., Moscow.  
(TEA, vitamin P enriched (Rus))  
(VITAMIN P, enrichment of tea (Rus))

BOKUCHAVA, M.A.

Biochemical problems associated with the development of the tea industry during 1959-1965. Biokhim. chain. proizv. no.8:5-9 '60.  
(MIRA 14:1)

1. Institut biokhimii imeni A.N.Bakha AN SSSR, Moskva.  
(Tea research)

BOXUCHAVA, M.A.

Ways of mechanizing and intensifying the process of rolling in the  
manufacture of black tea. Biokhim. chain. proizv. no.8:79-87 '60.  
(MIRA 14:1)

1. Institut biokhimii imeni A.N. Bakha AN SSSR, Moskva.  
(Tea)

BOKUCHAVA, M.A.; UL'YANOVA, M.S.

Conversion of catechols in tea leaves due to the action of enzymes  
and thermal processing. Biokhim. chain. proizv. no.8:107-110 '60.  
(MIRA 14:1)

1. Institut biokhimii imeni A.N. Bakha AN SSSR, Moskva.  
(Tea) (Catechol)

BOXUCHAVA, M.A.; POPOV, V.R.; KNYAZEVA, A.M.; UL'YANOVA, M.S.

Chemical composition and quality of Indian tea leaves and black tea. Biokhim. chain. proizv. no.8:111-128 '60. (MIRA 14:1)

1. Institut biokhimii imeni A.N. Bakha AN SSSR, Moskva.  
(Tea)

BOKUCHAYA, M.A.; PRUIDZE, V.G.

Auto-oxidation of tea and its relation with the process of aging.  
Biokhim. chain. proizv. no/8:134-137 '60. (MIRA 14:1)

1. Institut biokhimii imeni A.N.Bakha AN SSSR, Moskva.i Vsesoyuznyy  
nauchno-issledovatel'skiy institut chaya i subtropicheskikh kul'tur,  
Anaseuli.

(Tea)

(Oxidation)

BOKUCHAVA, M.A.; SKOBELEVA, N.I.; KNYAZEVA, A.M.; GRIGOR'YEV, A.I.;  
POLUPANOVA, R.V.

Results of testing the new technological of manufacturing black  
tea in the Dagomys Tea Factory in 1958-1959. Biokhim. chain.  
proizv. no.8:176-185 '60. (MIRA 14:1)

1. Test "Azerchay", Baku.  
(Azerbaijan--Tea)

BOKUCHAVA, M.A.; SKOBELEVA, N.I.

Increasing the vitamin P content and improving the quality of tea.  
Biokhim. chain. proizv. no.8:194-197 '60. (MIRA 14:1)

1. Institut biokhimii imeni A.N. Bakha AN SSSR, Moskva.  
(Tea) (Flavonoids)

BOKUCHAVA, M.A.; EMITRIYEV, A.F.; KORENYAKO, A.I.

Antibiotic properties of different types of tea. Biokhim. chain.  
proizv. no.8:204-206 '60. (MIRA 14:1)

1. Institut biokhimii imeni A.N. Bakha AN SSSR, i Institut mikro-  
biologii AN SSSR, Moskva. (ANTIBIOTICS)  
(TEA)

BOKUCHAVA, M.A.; SKOBELEVA, N.I.

Flavone transformation in the production of tea. *Biokhimiia* 25  
no. 3:404-406 My-Je '60. (MIRA 14:4)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R.,  
Moscow.

(FLAVONES) (TEA)

BOKUCHAVA, M.A.; SKOBELEVA, N.I.

Paper chromatographic study of carbohydrates by the use of a densitometer. Biokhimiia 26 no.2:361-365 Mr-Apr '61. (MIRA 14:5)

1. Institute of Biochemistry, Academy of Sciences of the U.S.S.R., Moscow.

(SUGARS)

(PAPER CHROMATOGRAPHY)

(TEA)

BOKUCHAVA, M.A.; UL'YANOVA, M.S.

Flavonic substances in the individual organs of the tea plant.  
Biokhimiia 26 no.4:615-620 Jl-Ag '61. (MIRA 15:6)

1. Institute of Biochemistry, Academy of Sciences of the USSR,  
Moscow.

(TEA)

(FLAVONE)

OPARIN, A.I., akademik; BOKUCHAVA, M.A.

Problems of biochemistry in tea production. Biokhim. chain, proizv.  
no.9:3-5 '62. (MIRA 16:4)

1. Chlen-korrespondent AN GruzSSR (for Bokuchava).  
(Tea research)

BOKUCHAVA, M.A.

Theroy and practice of the new technology in the production of black tea.  
Biokhim. chain. proizv. no.9:81-87 '62. (MIRA 16:4)

1. Institut biokhimii imeni A.N.Bakha AN SSSR, Moskva.  
(Tea)

BOKUCHAVA, M.A.; GULUA, K.P.; MAKHMUDOV, K.I.; TEDESHVILI, N.D.

Duration of leaf rolling and fermentation using new and old technologies.  
Biokhim. chain; proizv. no.9:109-118 '64. (MIRA 16:4)

1. Institut biokhimii imeni A.N.Bakha AN SSSR, Moskva i Nauchno-issledovatel'skiy institut chaynoy promyshlennosti, Anashtli.  
(Tea)

BOKUCHAVA, M.A.

Temperature regime during the rolling process and the need of developing an artificial climate in the rolling shops of tea factories. Biokhim. chain. proizv. no.9:126-129 '62. (MIRA 16:4)

1. Institut biokhimi imeni A.N.Bakha AN SSSR, Moskva, (Tea)

BOKUCHAVA, M.A.; PRUIDZE, G.N.

Green quick-soluble dry tea concentrate from a raw material. Soob.  
AN Gruz. SSR 37 no.3:587-594 Mr '55. (MIRA 18:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut chaynoy promyshlennosti. 2. Chlen-korrespondent AN GruzSSR (for Bokuchava).

KANAVETS, P.I.; GESS, B.A.; SPORIUS, A.E.; CHERNYSHEV, A.M.;  
MELENT'YEV, P.N.; CHERNYKH, V.I.; KHROMYAK, R.P.;  
KHAYLOV, B.S.; KRISOV, Yu.I.; TSYLEV, L.M.; SOKOLOV, V.S.;  
Prinimali uchastnye: MARKIN, A.A.; GORLOV, M.Ya.;  
VORONOV, Yu.G.; BULAKHOV, K.A.; KREMYANSKIY, V.L.; ARSHINOV,  
G.P.; MAZUN, A.B.; PISARNITSKIY, I.M.; BOKUCHAVA, O.A.;  
KIRILLOV, M.V.; TSELUYKO, P.I.; POLYAKOV, G.O.; REZKOV, A.S.;  
ZHUCHKOV, M.I.; ROMASHKIN, A.S.; ZUBKOV, A.S.; KOZLOV, N.N.

Pilot plant for the nodulizing of finely ground charge mix-  
tures by the method of chemical catalysis. Trudy IGI 22:  
93-109 '63. (MIRA 16:11)

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PHASE I BOOK EXPLOITATION

SOV/6246

Soveshchaniye po tseolitam. 1st, Leningrad, 1961.

Sinteticheskiye tseolity; polucheniye, issledovaniye i primeneniye  
(Synthetic Zeolites: Production, Investigation, and Use). Mos-  
cow, Izd-vo AN SSSR, 1962. 286 p. (Series: Its: Doklady)  
Errata slip inserted. 2500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye khimicheskikh  
nauk. Komisiya po tseolitam.

Resp. Eds.: M. M. Dubinin, Academician and V. V. Serpinskiy, Doctor  
of Chemical Sciences; Ed.: Ye. G. Zhukovskaya; Tech. Ed.: S. P.  
Golub'.

PURPOSE: This book is intended for scientists and engineers engaged  
in the production of synthetic zeolites (molecular sieves), and  
for chemists in general.

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Synthetic Zeolites: (Cont.)

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COVERAGE: The book is a collection of reports presented at the First Conference on Zeolites, held in Leningrad 16 through 19 March 1961 at the Leningrad Technological Institute imeni Lensovet, and is purportedly the first monograph on this subject. The reports are grouped into 3 subject areas: 1) theoretical problems of adsorption on various types of zeolites and methods for their investigation, 2) the production of zeolites, and 3) application of zeolites. No personalities are mentioned. References follow individual articles.

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Synthetic Zeolites: (Cont.)

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Belotserkovskiy, G. M., K. G. Ione, and T. G. Flachenov.  
Production of Granular Synthetic Zeolites and Study  
of Their Porous Structure

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Flachenov, T. G., G. M. Belotserkovskiy, V. P., Karel'-  
skaya, B. A. Lipkind, and L. I. Piguzova. Investiga-  
tion of the Secondary Porous Structure of Synthetic  
Zeolites and Their Drying Properties

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Lipkind, B. A., V. A. Burylov, S. V. Kapatsinskiy, and  
A. T. Slepneva. Granulation of a Synthetic Zeolite  
Desiccant

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Kanavets, P. I., A. E. Sporius, P. N. Melent'yev, A. I.  
Mazun, G. A. Bokushaya, V. I. Chernykh, and L. B.  
Khandros. Production of Strong Spherical Granules of  
Crystalline Zeolite Powders

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BAGIROV, A.Yu.; BOKUCHAYEVA, M.A., doktor biol. nauk, prof.,  
red.

[Production of tea in the Azerbaijan S.S.R.] Proizved-  
stvo chaia v Azerbaidzhanskoi SSR. Baku, Azerneshr,  
1964. 228 p. (MIRA 18:6)

BOKUN, JERZY

La mise au point des données gravimétriques nécessaires pour l'établissement en Pologne du réseau astronomo-géodésique et du nivellement de précision.

Varsovie, Pologne. 1957. 7p.

Monthly List of East European Accessions Index (EEAI), LC. Vol. 8, No. 9, September 1959  
Uncl.

BOKUN, J.

The Danzig-Kasprowy Wiech gravimetric base.

P. 119. (PRACE, PROCEEDINGS) (Warszawa, Poland) Vol. 5, no. 2, 1957

SO: Monthly Index of East European Accession (EEAI) LC Vol. 7, No. 5, 1958

Warsaw. Instytut Geodezji i Kartografii. (PRACE. PROCEEDINGS. Warszawa, Poland  
Vol. 6, no. 1, 1958.

Preparation of gravimetric materials for the Polish astrogeodetic net and the 1st  
class precise leveling net. p3.

Monthly List of East European Accessions Index (EEAI), ~~LE~~, Vol. 8, No. 6, June 1959  
Uncl.

BOKUN, J.  
CHOJNICKI, T.

Tables for computing in the system of normal heights a leveling correction on account of nonparallelism of equipotential surfaces. p. 136.

Warsaw. Instytut Geodezji i Kartografii. PRACE. PROCEEDINGS. Warszawa, Poland  
Vol. 6, no. 1, 1958.

Monthly List of East European Accessions Index (EEA), LC, Vol. 8, No. 6, June 1959  
Uncl.

S/035/62/000/004/047/056  
A001/A101

AUTHOR: Bokun, J.

TITLE: On determining the geoid heights relative to Krasowski ellipsoid in Poland on the basis of available astronomical-geodetic and gravimetric data

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 4, 1962, 27 - 28, abstract 4G171 ("Prace Inst. geod. i kartogr.", 1961, v. 8, no. 1, 113 - 140, Polish; Russian and English summaries)

TEXT: The author analyzes accuracy of astronomical leveling in Poland using over 100 astronomical-geodetic points. For the typical distance between astronomical stations being 70 km, the error in determining the average slope of the geoid turned out to be  $+1''5$ . Astronomical-geodetic deflections of the vertical were interpolated by means of gravimetric ones determined in intermediate points [The author did not employ in this case a more economical method, developed in the USSR, of direct calculation of height differences of the quasi-geoid in astronomical stations with allowance for gravimetric measurements in

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On determining the...

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the region embracing the astronomical stations in question (Reviewer)]. Gravitmetric deflections of the vertical are determined with errors of  $\pm 0.5 - 0.7$  at points of the eight basic leveling traverses of about  $210 \times 210$  km dimension through each 15 km. The accuracy of transfer of the geoid height between the neighboring astronomical stations with intermediate points through 7 - 15 km is estimated to be 8 cm, which is 6 times better than in conventional leveling. The results of preliminary accuracy determination agree with actually obtained misclosures of traverses (see Table)

Mean misclosures of traverses	Expected	Actual
At conventional astronomical leveling	$\pm 149$ cm	$\pm 176$ cm
With interpolation through gravimetric deflections of the vertical	$\pm 23$	$\pm 28$

The network of basic traverses ensured the accuracy of determining geoid heights relative to the initial point of Borov Gur amounting to  $\pm 30$  cm within the limits of the whole country. Within the basic traverses were performed additional leveling traverses at an average distance between neighboring lines of 20' in

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latitude and 30' in longitude. Geoid heights at the points of these lines were determined with errors of  $\pm 15$  cm with respect to basic traverses. As a result of this work, the map of geoid over Krasowski ellipsoid was plotted with lines of equal heights through each 0.5 m.

L. Pellinen

[Abstracter's note: Complete translation]

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S/035/62/000/005/087/098  
A055/A101

AUTHOR: Bokun, J. , Chojnicki, T.

TITLE: Calibration of the gravimetric network on the territory of Poland

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 36, abstract 5G199 ("Prace Inst. geod. i kartogr.", 1961, 8, no. 2, 3 - 27, Polish; Russian and English summaries)

TEXT: The now existing network of the main gravimetric points on the territory of Poland, based upon the reference point in Warsaw, was established according to the coordinated projects tending to create in Poland the first class gravimetric network and a pendulum network. In this article are described the results of measurements and the equalizing calculations for reducing both networks to the same scale and converting them into the CGS system. The pendulum network consists of 9 points; 16 connections between these points were achieved with the aid of a four-pendulum Askania instrument, in 1956 - 1958, by the Higher Geodesy department of the Warsaw polytechnic institute together with the Geodesy and Cartography institute (RZhAstr, 1958, no. 8, 5438; 1960, no. 12, ✓)

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12784; 1961, no. 4, G218). The network consists of eight triangles; the triangle side is, on the average,  $\sim 250$  km. The majority of the sides have errors within  $\pm 0.18$  mgal; a few of them have errors up to  $\pm 0.35$  mgal. The network of the first class points was constructed by the geological institute in 1956 - 1959. It contains 18 points, between which 37 connections were established by the Askania Gs-11 no. 95 gravimeter with utilization of air transport. The network consists of 20 triangles; the triangle side is, on the average,  $\sim 150$  km. The misclosures in the triangles do not exceed 0.18 mgal. All the points of the pendulum net are connected, by the Gs-11 gravimeter (with an error of  $\pm 0.01$  mgal), to the near-by points of the first class network. The adjustment calculations were effected in two variants; in both cases, the pendulum connections were also adjusted. In the first variant, the constant coefficients a and b of the Gs-11 no. 95 gravimeter were determined from 16 values of  $\Delta g$ , measured by pendulums (see abstract 5G198); the weights of the measured values of  $\Delta g$  were considered as being inversely proportional to the squares of their RMS errors. With the obtained values of the gravimeter constants was adjusted the first class network. In the second variant, the networks were first adjusted independently: the pendulum network (account taken of the weights) and the gravimetric network of the

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first class. The RMS error of the adjusted value of  $\Delta g$  of the side of the pendulum network proved to be  $\pm 0.15$  mgal. To reduce the preliminarily adjusted network of the first class to the system of the adjusted pendulum network, a system of 9 equations (according to the number of common points) was solved. For the reference point (Warsaw), a correction of  $+0.151 \pm 0.043$  mgal was obtained; the correction for the scale coefficient of the Gs-11 no. 95 gravimeter proved equal to  $+(27.59 \pm 3.16) \cdot 10^{-4}$ . The discrepancies between the values of  $g$  at the nine points (adjusted according to the one and the other variant) do not exceed 0.11 mgal; on the average, they amount to 0.04 mgal. The relative error in the scale coefficient of the gravimetric network of the first class of Poland (error of the "Polish milligal") is estimated approximately at  $3 - (4 \cdot 10^{-4})$ . There are 15 references. ✓

P. Shokin

[Abstracter's note: Complete translation]

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S/035/62/000/005/086/098  
A055/A101

AUTHOR: Bokun, Jerzy

TITLE: The problem of the calibration of gravimeters in Poland

PERIODICAL: Referativnyy zhurnal, Astronomiya i Geodeziya, no. 5, 1962, 36,  
abstract 5G198 ("Prace Inst. geod. i kartogr.", 1961, 8, no. 2,  
28 - 49, Polish; Russian and English summaries)

TEXT: In the recent years, gravimetric determinations have been usually effected, in Poland, with the aid of the Askania Gs-11 gravimeter. A method for calibrating gravimeters of this type was evolved in the Warsaw scientific research institute for geodesy and cartography. On the basis of the balance equation of the gravimeter resilient system, the following expression was obtained for the gravity difference between two points: ✓

$$\Delta g = \Delta M(a+b\Sigma M),$$

where  $\Delta M = M_2 - M_1$ ,  $\Sigma M = M_1 + M_2$ ;  $M_1$  and  $M_2$  are the readings on the gravimeter scale at the observation points; a and b are constant coefficients, determined

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The problem of the calibration of gravimeters in Poland

S/035/62/000/005/086/098  
A055/A101

from observations in at least three points for which the gravity value is known. For studying the variability of the coefficients  $a$  and  $b$  with time, as well as their dependence on the temperature of the gravimeter thermostatic control, a gravimetric basis is used, that is located along the Cracow - Kuznica highway ( $\Delta g \sim 290$  mgal, distance 108 km). The basis has 7 gravimetric points; in each point are laid concrete slabs. Descriptions and sketches of the points are reproduced, and  $\Delta g$  values are given. The values of the constants  $a$  and  $b$  of the gravimeter Gs-11 no. 112 were originally determined (in 1958) from threefold observations in the gravimetric points of Warsaw, Prague and Budapest, and at the three pendulum points of Poland: Cracow, Zakopane and Kuznica (RZhAstr, 1958, no. 8, 5438). With the new values of the constants  $a$  and  $b$ , were determined the values of  $\Delta g$  for all sections of the gravimetric basis; these values were expressed according to the scale of the "provisional Polish milligal". Control measurements at points of foreign gravimetric bases, in the German Democratic Republic ( $\Delta g \sim 166$  mgal) and in Czechoslovakia ( $\Delta g \sim 93$  mgal), revealed an agreement between the scales within  $4 \cdot 10^{-4}$ . A satisfactory time-constancy of the coefficients  $a$  and  $b$ , and a considerable variation of the coefficient  $a$  with temperature were ascertained by repeated observations (1958 - 1960) in the Polish

Card 2/3

The problem of the calibration of gravimeters in Poland

S/035/62/000/005/086/098  
A055/A101

gravimetric basis. The relative error in the determination of the constant  $a$  is estimated by the value  $m_a/a = +3 \cdot 10^{-4}$ ; the relative variation of the coefficient  $a$  with temperature is  $\Delta a/\text{degree}/a = +(4.8 \pm 1.1) \cdot 10^{-5}/\text{degree}$ ; the relative error in the determination of the coefficient  $b$  is  $\pm 14\%$ . The discrepancy between the coefficient  $a$  at  $40^\circ\text{C}$  and its value as specified by the firm Askania attains  $1\%$ . The necessity is stressed to undertake systematic investigations with a view to enhancing the precision of the gravimetric basis, to improving the calculation method and to determining the dependence of the gravimeter constants on time and on local influences. There are 12 references.

P. Shokin

[Abstracter's note: Complete translation]

Card 3/3

ACCESSION NR: AT4040346

P/2505/63/010/002/0076/0089

AUTHOR: Bokun, Jerzy (Bokun, Yezhi)

TITLE: Remarks concerning the computation of geopotential numbers

SOURCE: Warsaw. Instytut Geodezji i Kartografii. Prace, v. 10, no. 2(22), 1963, 76-89

TOPIC TAGS: geopotential number, gravimetric map, mareograph

ABSTRACT: The use of geopotential numbers in problems concerning systems of heights and the definition of these numbers was accepted by the International Association of Geodesy (Bull. geodesique, nr. 45, 1957; nr. 47, 1958). For computation of the differences of geopotential numbers according to the empiric formula

$$\Delta c_{A-B} = \sum_{i=1}^n (g_{i,i+1} \Delta h_{i,i+1})$$

there must be known for the elementary sections  $i, i+1$  the result of levelling  $\Delta h_{i,i+1}$  and the mean value of the acceleration of gravity  $g_{i,i+1}$  for this section on the physical surface of the earth. In plain and hilly regions the section between the neighboring height marks of the levelling line can be adopted as

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ACCESSION NR: AT4040346

the elementary section  $i, i+1$ ; in a mountainous region, however, it may be necessary to divide the section of levelling into two or more elementary sections. For the whole line of levelling between the points 1 and N it is proposed to determine  $\Delta c_{1-N}$  according to the formula

$$\Delta c_{1-N} = g_0 \cdot \sum_{i=1}^N \Delta h_{i,i+1} + \sum_{i=1}^N (\delta g_{i,i+1} \cdot \Delta h_{i,i+1}).$$

The value of  $g_{i, i+1}$  may be determined as follows: a) from the values of the acceleration of gravity, measured directly on the levelling points  $i$  and  $i+1$  and computing  $g_{i,i+1} = 1/2 (g_i + g_{i+1})$ , or b) from the anomalies on points  $i$  and  $i+1$ , determined from the gravimetric map, further computing  $g_i$  and  $g_{i+1}$  according to a given formula. A formula is also deduced for the expected mean square error of determination of  $\Delta c$ ; and the computation scheme is given in a table. The author concludes that the geopotential numbers may be of practical use in levelling of the connections between null-points of the water-level rods of the mareographs. In this case the use of the map of gravimetric anomalies for the determination of  $g_{i,i+1}$  will be sufficient. Attention is also directed to the practical importance of the geopotential numbers in the development of the great international nets.

Card 2/3

ACCESSION NR: AT4040346

ASSOCIATION: none

SUBMITTED: 00Mar63

SUB CODE: ES

DATE ACQ: 25Jun64

NO REF SOV: 002

ENCL: 00

OTHER: 012

Card 3/3

BOKUN, Jerzy

Meeting of the International Gravimetric Commission. Geod. i  
kart 12 no.2:153-162 '63.

BOKUN, Jerzy; KORONOWSKI, Ryszard; LESNIOK, Henryk; RADECKI, Julian

Review of the achievements of geodetic sciences during the  
20-year period of the Polish People's Republic. Geod i kart  
13 no. 3:183-208 '64.

BOKUN, Jerzy

Influence of the relative deflection of the vertical on the determination of the bearing angle in a trigonometric station by the method of measuring the astronomic azimuth. Prace inst geod 10 no. 2: 36-55 '63.

Remarks on the computation of geopotential numbers. Ibid.: 76-89.

BOKUN, K.; SIKORSKI, J.

The role of flight-medical crew members in preventing disasters in aeronautic schools. p. 29.

WOJSKOWY PRZEGLAD LOTNICZY. (Dowództwo Wojsk Lotniczych) Warszawa, Poland, Vol. 12, no. 5, May 1959

Monthly List of East European Accessions (EEAI) LC Vol. 8, no.8, August, 1959

Uncl.

BOKUN, N.; MOSTSITSKIY, V.

Output of semiprocessed food will double. Obshchestv. pit. no. 3:25-  
26 Mr '61. (MIRA 14:4)

1. Sekretar' kulinarного soveta dorursa L'vovskoy zheleznoy dorogi (for Bokun).
  2. Predsedatel' kulinarного soveta dorursa L'vovskoy zheleznoy dorogi (for Mostsitskiy).
- (Lvov—Restaurants, lunchrooms, etc.—Equipment and supplies)

MALOVITSKIY, Ya.P.; BOKUN, R.A.; MARTYNOVA, G.P.

New data on the geology of the marine extension of the  
northwestern Caucasus. Neftegaz. geol. i geofiz. no.7:  
38-41 '63.

(MIRA 17:10)

1. Nauchno-issledovatel'skaya morskaya geofizicheskaya  
ekspeditsiya Vsesoyuznogo nauchno-issledovatel'skogo  
instituta geofizicheskikh metodov razvedki.

NEPROCHNOV, Yu.P.; NEPROCHNOVA, A.F.; ZVEREV, S.M.; MIRONOVA, V.I.;  
BOKUN, R.A.; CHEKUNOV, A.V.

Recent data on the crustal structure of the Black Sea trough,  
south of the Crimea. Dokl. AN SSSR 156 no. 3:561-564 '64.  
(MIRA 17:5)

1. Predstavleno akademikom D.I. Shcherbakovym.

ACC NR:AT6034365

SOURCE CODE: UR/0000/66/000/000/0040/0048

AUTHOR: Bokun, V. V.; Bokun, R. A.; Golovinskiy, V. I.; Gol'mshtok, A. Ya.

ORG: none

TITLE: Geological structure of the Mesozoic-Cenozoic sedimentary cover in the northwestern part of the Black Sea

SOURCE: AN SSSR. Mezhdunarodnyy geofizicheskiy komitet. Stroyeniye Chernomorskoy vpadiny (Structure of the Black Sea depression); sbornik statey. Moscow, Izd-vo Nauka, 1966, 40-48

TOPIC TAGS: seismic wave propagation, earth crust, elastic wave propagation, gravity measurement, geoelectric boundary, *tectonic, stratigraphy*

ABSTRACT: On the basis of geophysical data, two conjugate tectonic units (a basin and an arch-like uplift) are identified in the Black Sea depression. The axis of the basin runs in a southwest direction from the area of the northern Azov depression through the eastern part of the northern Sivashi to the Bakal spit on the northern coast of the Tarkhankutskiy Peninsula. The conjugate zone of the depression and the uplift is accompanied by a series of sublatitudinal disturbances which are marked by a clear gravity gradient. The Karkinitzkiy gravity minimum is

Card 1/2

ACC NR:AT6034365

explained by the structure of the deep-seated layers of the crust. Elastic-wave propagation velocities and geoelectric properties determined from deep exploratory wells in the Tarkhankutskiy area indicate the existence of two major layers, the upper consisting of terrigenous Tertiary formations characterized by unstable velocity characteristics. The coincidence of a velocity jump and the occurrence of the geoelectric boundary indicated that the refracting boundary and the horizon of infinitely high resistance belong to the upper part of the carbonate layers of the Upper Cretaceous. Article contains charts showing seismic profiles, refracting horizons, the geoelectric horizon, and velocities. Orig. art. has: 4 figures.

SUB CODE: 08/ SUBM DATE: 04May66/ ORIG REF: 008

Card 2/2

ACC NR:AT6034365

SOURCE CODE: UR/0000/66/000/000/0040/0048

AUTHOR: Bokun, V. V.; Bokun, R. A.; Golovinskiy, V. I.; Gol'mshtok, A. Ya.

ORG: none

TITLE: Geological structure of the Mesozoic-Cenozoic sedimentary cover in the northwestern part of the Black Sea

SOURCE: AN SSSR. Mezhdovedomstvennyy geofizicheskiy komitet. Stroyeniye Chernomorskoy vpadiny (Structure of the Black Sea depression); sbornik statey. Moscow, Izd-vo Nauka, 1966, 40-48

TOPIC TAGS: seismic wave propagation, earth crust, elastic wave propagation, gravity measurement, geoelectric boundary, *tectonic, stratigraphy*

ABSTRACT: On the basis of geophysical data, two conjugate tectonic units (a basin and an arch-like uplift) are identified in the Black Sea depression. The axis of the basin runs in a southwest direction from the area of the northern Azov depression through the eastern part of the northern Sivashi to the Bakal spit on the northern coast of the Tarkhan-kutskiy Peninsula. The conjugate zone of the depression and the uplift is accompanied by a series of sublatitudinal disturbances which are marked by a clear gravity gradient. The Karkinitskiy gravity minimum is

Card 1/2

ACC NR:AT6034365

explained by the structure of the deep-seated layers of the crust. Elastic-wave propagation velocities and geoelectric properties determined from deep exploratory wells in the Tarkhankutskiy area indicate the existence of two major layers, the upper consisting of terrigenous Tertiary formations characterized by unstable velocity characteristics. The coincidence of a velocity jump and the occurrence of the geoelectric boundary indicated that the refracting boundary and the horizon of infinitely high resistance belong to the upper part of the carbonate layers of the Upper Cretaceous. Article contains charts showing seismic profiles, refracting horizons, the geoelectric horizon, and velocities. Orig. art. has: 4 figures.

SUB CODE: 08/ SUBM DATE: 04May66/ ORIG REF: 008

Card 2/2

L 6512-66

ACC NR: AP5025648

SOURCE CODE: UR/0106/65/000/010/0064/0070

AUTHOR: Kitayev, V. Ye.; Bokunayev, A. A.

ORG: none

TITLE: On-off d-c voltage stabilizer with a parallel-connected regulating transistor

SOURCE: Elektrosvyaz', no. 10, 1965, 64-70

TOPIC TAGS: voltage stabilizer, transistor voltage stabilizer

ABSTRACT: A transistorized d-c voltage stabilizer operating under sustained oscillation conditions is considered. Essentially, a regulating transistor (P-4, P-209, or P210), an emitter-coupled trigger, and a comparison circuit (total of 6 transistors) constitute the stabilizer which can handle a relatively heavy load current with a voltage ripple of about 1%. Formulas for the principal parameters of the stabilizer are developed. An experimental verification on a laboratory hookup developing 5 amp at 15 v (50% load drop,  $\pm 5\%$  supply-voltage variation) is reported. Orig. art. has: 4 figures, 34 formulas and 1 table.

SUB CODE: EC/ SUBM DATE: 08Feb65/ ORIG REF: 003/ OTH REF: 001

nw

Card 1/1

UDC: 521.3.072.2

09011792

BOKUNYAYEV, A.I., inzh., red.; SOKOLOV, N.M., kand. tekhn. nauk,  
red.; RZHANITSYN, B.A., red.; KLIMOVA, G.D., red.izd-va;  
MOCHALINA, Z.S., tekhn. red.

[Construction specifications and regulations] Stroitel'nye  
normy i pravila. Moskva, Gosstroizdat. Pt.3. Sec.B. ch.5.  
[Stabilization and artificial firming of soils; regulations  
for the organization, performance, and acceptance of work]  
Stabilizatsiia i iskusstvennoe zakreplenie gruntov; pravila  
organizatsii, proizvodstva i priemki rabot (SNiP III-B.  
5-62). 1963. 23 p. (MIRA 16:9)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam  
stroitel'stva. 2. Nauchno-issledovatel'skiy institut osnova-  
niy i podzemnykh sooruzheniy Akademii stroitel'stva i arkhi-  
tektury SSSR (for Rzhanitsyn).

(Soil stabilization)

EXCERPTA MEDICA Sec. 12 Vol. 11/11 Ophthalmology Nov 57.

1858. BOKUNYAEVA A., LAIKHTER B. and NEIMAN V. "The aged and degeneration in the macular region VESTN. OFTAL. 1957, 2 (36-39) Illus. 1 (Russian text)

The authors examined 62 patients, aged from 50 to 70 and over, in whom macular degeneration was diagnosed. The vague initial symptoms, the ophthalmoscopic picture, the course of the disease, is described in detail. In 16 patients the vision was impaired in both eyes, in 28 in one eye; in 12 there was no impairment of vision. Most of the patients suffered from atherosclerosis, cardiac and hypertensive diseases. The classical senile degeneration was found in 46 patients. In some the diagnosis was missed as they had glaucoma and the pupils could not be dilated. Disciform degeneration was observed in 2, colloidal in 4 and retinitis circinata in 3 patients. The disciform degeneration is the most severe as it is the result of a haemorrhage; changes are localized between the lamina vitrea and the neuro-epithelium. At first a transudate penetrates the pigment epithelium and spreads to the neuro-epithelium; later a connective tissue forms with subsequent degeneration of the remaining layers of the retina. The initial changes in the macula are best seen with red free light examination. Amsler's chart was also used for diagnosis. The authors stress the point of diagnosing early the condition as active oxygen therapy (the details are not given; abstractor) acts favourably on the course of the disease (usually the sclerosis of the vessels indicate oxygen deficiency). Vasodilators, tissue therapy and iodides also were used with good results in some patients.

Sitchevskaya - New York, N.Y.

17a SSSR Glaznoye otdeleniye Tsentral'noy polikliniki Ministerstva zdavookhraneniya

KOST, Ye.A.; BOKUNYAYEVA, N.I.; IZRAIL'SKAYA, N.M.

"Handbook on laboratory methods of investigation" by G.N.Udintsev,  
V.B.Blank, I.S.Timeskov. Reviewed by E.A.Kost, N.I.Bokuniaeva,  
N.M.Izrail'skaia. Lab. delo 7 no.3:62-63 Mr '61. (MIRA 14:3)  
(MEDICAL LABORATORIES—HANDBOOKS, MANUALS, ETC.)  
(UDINTSEV, G.N.) (BLANK, V.B.) (TIMESKOV, I.S.)

Kozl, Ye.A.; BUKHARIN, N.I. (Moskva);

Laboratory research in medical institutions. Lab. Ref. no.  
11:643-644, 1964. (Moskva) 17:12;

ZVYAGIL'SKIY, A.A., kand.tekhn.nauk; BOKUNYAYEVA, V.I.

Investigating feldspathic raw materials from the Urals. Trudy GIEKI  
no.4:3-17 '60. (MIRA 15:1)

(Ural Mountains--Feldspar)

B. V. V. V.

B. V. V.: "The statistical theory of the structure of the surface layer of a liquid". Minsk, 1955. Min Higher Education USSR. Belorussian State U imeni V. I. Lenin (Dissertation for the Degree of Candidate of PHYSICOMATHEMATICAL Science)

SO: Knizhnaya Letopis' No. 51, 10 December 1955

A molecular partition function in two-phase systems.  
I. Z. Fisher and B. V. Bokut (White Russian State Univ.,  
Minsk). *Zhur. Fiz. Khim.* 30, 2547-54 (1956).--Integral  
and differential equations are derived for mol. partition  
coeff. functions of 2-phase liquid-vapor systems with a plane  
boundary between the phases.  
— W. M. Stenberg —

Chem  
phys  
aang

A simple model of the transition layer in liquid-gas. I. Z.  
Kisher and B. V. Bokut (V. I. Lenin State Univ., Minsk)  
*Zhur. Fiz. Khim.* 30, 2747-52 (1953); cf. C.A. 51, 8246d  
The equations for the mol. distribution functions for un-  
bounded liquid-vapor systems, derived earlier (loc. cit.), are  
complicated. The layer of the liquid at the ideal wall can  
be considered a good approximation of the actual transition  
layer of the free dividing boundary liquid-vapor. An  
integral equation for the microdensity of the liquid at the  
ideal wall in superpositional approximation was derived.

W. M. Sternberg

*W. M. Sternberg*

BOKUT, B V

16(1); 20(0,5) TRANS I BOOK EXPOSITIONS 207/1999

Abstracts and Bibliography. Institute of Physics and Mathematics, USSR Academy of Sciences, Moscow, 1977. 205 p. 200 copies printed.

Ed.: B. I. Stepanov, Academician, USSR Academy of Sciences; Ed. of Publishing House: S. Morozov, Tech. Ed.: I. Volkovskiy.

PREFACE: This book is intended for mathematicians, physicists, and graduate students in mathematics and physics.

CONTENTS: This book contains a series of articles on recent contributions by members of the Institute of Physics and Mathematics (Institute of Physics and Mathematics, USSR Academy of Sciences, Moscow, in the fields of relativistic quantum mechanics, analysis, linear groups, theory of adjointness, and differential equations. The

first article contains a brief account of the work of the Institute, including names of scientists and mathematicians associated with it, facilities, scientific accomplishments, and fields of interest.

Transactions of the Institute (Cont.)		207/1999
Zorinich, B. A., B. A. Zhuravskiy, and I. P. Ipatovich. Dispersion Filters for the Infrared Region of the Spectrum		214
Shen, B. V. Surface Energy of a System in the Neighborhood of an Ideal Wall		224
Petrov, P. I. On Certain Matrix Representations for Three-Dimensional Spaces		230
Baranov, B. Z. Analytic Theory of Nonlinear Systems of Ordinary Differential Equations		235
Krylov, V. I. On the Proof of the Impossibility of Constructing a Quadrature Formula With Equal Coefficients and Number of Nodes Greater Than Nine		249
Stepanov, B. A. Two Theorems on Reducible Nilpotent Linear Groups		255
Petrov, V. V. (Dissertation) Determination of the Weight of a Function of Adjusted Values Using Polynomial Adjustment Method		260
Card 4/5		7

BOKUT', B.V.

Surface energy of a system at an ideal wall. Trudy Inst.fiz. 1  
mat. AN BSSR no.2:224-229 ' 57. (MIRA 12:1)  
(Surface chemistry)

FISHER, I.Z.; BOKUT', B.V.

The surface layer of a one-dimensional liquid. Zhur.fiz.khim.  
31 no.1:200-204 Ja '57. (MLRA 10:5)

1. Belorusskiy gosudarstvennyy universitet im. V.I. Lenina, Minsk.  
(Liquids, Kinetic theory of)

BOKUT', B.V.

On the phenomenological theory of the optical activity  
of crystals. Trudy Inst.fiz.i mat.Ak BSSR no.3:100-110  
'59. (MIRA 13:4)  
(Crystals--Optical properties) (Polarization (Light))

24(4), 24(2)

SOV/51-6-4-21/29

AUTHORS: Bokut', B.V. and Fedorov, F.I.

TITLE: On the Theory of the Optical Activity of Crystals. (K teorii opticheskoy aktivnosti kristallov). III. The General Equation of Normals (III. Obshcheye uravneniye normalsy)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 4, pp 537-541 (USSR)

ABSTRACT: In the earlier parts of this work (Refs 1, 2) the author developed an invariant phenomenological theory on the optical activity of crystals of all types of symmetry. The present paper deals with the general equation of normals for the optically active crystals when magnetic effects are allowed for. The theory shows that three types of waves are possible in the optically active crystals, and the phase velocity of the third wave should be very small compared with the velocity of light. The paper is entirely theoretical. There are 6 references, 5 of which are Soviet and 1 translation from German into Russian.

SUBMITTED: March 15, 1958

Card 1/1

AUTHORS: Bokut', B.V. and Fedorov, F.I.

SOV/51-7-4-20/32

TITLE: Propagation of Light in Absorbing Magnetic Active Isotropic Media and Cubic Crystals

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 4, pp 558-561 (USSR)

ABSTRACT: The authors discuss propagation of plane electromagnetic waves in an optically isotropic medium, possessing optical absorption, optical activity and magnetic properties. It is shown that when the magnetic terms of the optical activity are taken into account, circular dichroism should occur. The paper is entirely theoretical. There are 8 references, 6 of which are Soviet and 2 translations.

SUBMITTED: March 23, 1959

Card 1/1

BOKUT', B.V.; FEDOROV, F.I.

Reflection and refraction of light in optically isotropic active  
media. Opt. i spektr. 9 no.5:635-639 N '60. (MIRA 13:11)  
(Polarization (Light)) (Reflection (Optics))  
(Refraction)

BOKUT', B.V.

Propagation of light in absorbing magnetic optically active crystals  
of the planar classes of medium syngony. Kristallografiya 6  
no.5:671-675 S-O '61. (MIRA 14:10)

1. Institut fiziki AN BSSR.  
(Crystals Optical properties)

S/070/62/007/006/011/020  
E132/E435

AUTHORS: Fedorov, F.I., Bokut', B.V., Konstantinova, A.F.

TITLE: The optical activity of crystals of the classes of intermediate symmetry having planes of symmetry

PERIODICAL: Kristallografiya, v.7, no.6, 1962, 910-915

TEXT: The classes in question  $L^6_6P$ ,  $L^4_4P$  and  $L^3_3P$  (6 mm, 4 mm, 3 mm) having a plane of symmetry parallel to their axes of highest order have hitherto been thought to be optically inactive. There are few crystals representative of these classes but tourmaline is one. Rotation of the plane of polarization cannot occur for any direction of propagation but optical activity can manifest itself by other phenomena, as in optically active crystals of other classes, for propagation along directions other than the optic axis. It is shown that the phenomenon of the elliptic polarization of the reflected wave is a unique symptom of optical activity. It is, however, normally extremely small - of the order of  $10^{-5}$  in quartz. An experimental arrangement for making observations under the best conditions is suggested. The surface of the crystal is immersed in a liquid of carefully

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The optical activity ...

S/070/62/007/006/011/020  
E132/E435

chosen refractive index. The refractive index can be changed slightly, by altering its temperature, thus changing the sign of the effect. In addition to detecting the presence of optical activity, it should be possible to determine its sign. In principle too, optical activity can be detected in absorbing crystals. There is 1 figure.

ASSOCIATIONS: Institut fiziki AN BSSR (Institute of Physics AS BSSR).  
Institut kristallografii AN SSSR  
(Institute of Crystallography AS USSR)

SUBMITTED: March 21, 1962

Card 2/2

45079

S/051/63/014/001/019/031  
E032/E514

24 1200

AUTHORS: Bokut', B.V. and Sotskiy, B.A.

TITLE: Transmission of light through an optically active absorbing plate

PERIODICAL: Optika i spektroskopiya, v.14, no.1, 1963, 117-120

TEXT: The radiation is assumed to be at normal incidence on a plane-parallel optically-isotropic active absorbing plate of thickness  $d$  placed in an isotropic medium with a refractive index  $n$ . The reflections from both surfaces are taken into account. It is shown that the reflected and transmitted fields are in general elliptically polarized. If the incident wave is circularly polarized, then double refraction will be absent and all the waves will have the same polarization as the incident wave. If the incident wave is plane polarized, then the transmitted wave will also be linearly polarized but its plane of polarization will be rotated through an angle  $\chi = 1/2 k^2 d \alpha$ , where  $k$  is the wave number in vacuum and  $\alpha$  is the optical activity coefficient,  $d$  is the thickness. The reflected wave will be elliptically polarized with the ratio of the semi-axes given by

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Transmission of light through ...

S/051/63/014/001/019/031

E032/E514

$$\frac{b}{a} = \frac{np \left( n_o^2 - n^2 - \kappa^2 \right)}{\left| n_o^2 - n^2 \right|^2}$$

where  $n_o$  and  $\kappa$  are the refractive index and absorption coefficient of the plate, respectively, and  $p = ka$ . These results are obtained by solving Maxwell's equations subject to the appropriate boundary conditions. The paper concludes with a molecular interpretation of these results in terms of the C. W. Oseen theorem (Ann. Phys., 48, 7, 1915). The molecular treatment yields the same results as the "macroscopic solution" of the Maxwell equations.

SUBMITTED: November 30, 1961

Card 2/2

ACCESSION NR: AP4009464

S/0051/63/015/006/0797/0802

AUTHOR: Bokut', B.V.; Fedorov, F.I.

TITLE: Reflection and refraction of light by optically active crystals

SOURCE: Optika i spektroskopiya, v.15, no.6, 1963, 797-802

TOPIC TAGS: reflection, refraction, polarization, Maxwell equation, optically active crystal, tetragonal crystal, nonmagnetic crystal

ABSTRACT: To date the properties of optically active crystals have not been adequately investigated. Accordingly, in the present paper there is solved in general form the problem of reflection and refraction of plane electromagnetic waves at the surface of an arbitrarily oriented, transparent, isotropic medium with a given index of refraction, the magnetic properties of which are neglected. In view of the cumbersome character of the calculations in the ordinary coordinate representation, some simplifying assumptions are made and the results are obtained in covariant form. The analysis is started with the Maxwell equations for plane waves in an optically active medium, written taking into account the dielectric constant, the electric optical activity tensor, the refraction vector, the wavenumber, the

Card<sup>1/2</sup>

ACC.NR: AP4009464

index of refraction, and the wave normal. The results of the rather lengthy and involved calculations are applied to crystals of the inversion-planar class of tetragonal symmetry. It is concluded that when the wave normals of the refracted waves coincide in direction with the optical c axis, the ellipticity will be nil; that is, in this case the inversion-planar crystal will not differ as regards its optical properties from an inactive uniaxial crystal. Orig.art.has: 81 formulas.

ASSOCIATION: none

SUBMITTED: 24Mar63

DATE ACQ: 03Jan64

ENCL: 00

SUB CODE: PH

NR REF SOV: 004

OTHER: 003

Card 2/2

L 24745-65 EWG(j)/EWA(k)/FBD/FMT(1)/EEG(k)-2/EEG(t)/T/EEG(b)-2/EWP(k)/EWA(m)-2/  
EWA(h) Pf-l/Pl-l/Pl-l/Pn-l/Pol/Pab IJP(c)/AFWL/SSD/SSD/ASD(a)-5/AFETR/AFTG(p)/  
ACCESSION NR: AP5002540 RAEM(a)/ESD(gg)/ S/0250/64/008/011/0713/0716  
ESD(t) WD

AUTHOR: Bokut', B. V.; Khatkevich, A. G.

55  
54  
B

TITLE: Theory of light wave frequency conversion by crystal

SOURCE: AN BSSR. Doklady, v. 8, no. 11, 1964, 713-716

TOPIC TAGS: light frequency conversion, laser, nonlinear conversion,  
laser frequency conversion 25

ABSTRACT: The authors refer to the phenomenon of nonlinear frequency conversion of light achieved by lasers as observed by Franken et al (Phys. Rev. Lett. 7, 1961, 118) and later investigated by a number of other Western researchers. This paper is concerned specifically with the polarization waves forming in crystal irradiated by two light waves of differing frequencies. Two waves will propagate from each incident wave within a nonlinear crystal due to double refraction. Nonlinear polarization of the crystal ensues. The equation given for the general complex tensor of the nonlinear polarization

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ACCESSION NR: AP5002540

indicates that up to fourteen various polarization waves are formed in the crystal, four with frequencies  $\omega_1$  and  $\omega_2$  and three with frequencies  $2\omega_1$  and  $2\omega_2$  ( $\omega_1$  and  $\omega_2$  being the frequencies of the incident waves). In addition, the crystal itself, which is assumed to be non-absorptive, optically inactive, and nonmagnetic, displays a complex polarization with a spatially variable component. The polarization waves in such a crystal excite electromagnetic radiation which can be described by the nonhomogeneous wave equation derived from Armstrong et al (Phys. Rev. 127, 1962, 1761), the solution of which is the sum of the general solution of the homogeneous and the partial solution of the nonhomogeneous equation. A simplified version of the solution is derived which indicates that, generally, two nonhomogeneous polarization waves are excited, the character and relationship of which in various cases are discussed. Orig. art has: 12 formulas.

ASSOCIATION: Institut fiziki AN BSSR (Institute of Physics, AN BSSR)

SUBMITTED: 30Apr64

ENCL: 00

SUB CODE: EC, OP

NO REF SOV: 001

OTHER: 004

ATD PRESS: 3167

Card 2/2

L 12910-65 EWT(1)/T/EEG(b)-2 IJP(c)/AS(mp)-2/BSD/ASD(a)-5/ESD(ge)/ESD(t)

ACCESSION NR: AP4047181

S/0051/64/017/004/0607/0611

AUTHORS: Bokut', B. V.; Fedorov, F. I.

TITLE: Reflection and refraction of light by optically active inversion-planar crystals

SOURCE: Optika i spektroskopiya, v. 17, no. 4, 1964, 607-611

TOPIC TAGS: crystal lattice symmetry, crystal syngony, light reflection, light refraction, optical activity

ABSTRACT: The results of an earlier investigation by the authors (Opt. i spektr. v. 15, 798, 1964) to determine the amplitudes of the waves reflected and refracted by an optically active crystal of inversion-planar class of tetragonal syngony for various combinations of the following orientations of the binormal and of the plane of incidence: binormal parallel perpendicular, or inclined to the interface, and plane of incidence parallel or perpendicular to the bi-

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ACCESSION NR: AP4047181

normal, passing through a two-fold crystal axis, and coinciding with one of the symmetry planes of the crystal. The possibility of experimentally determining and measuring the parameter of optical activity of such crystals is discussed. It is shown that the vanishing of the scalar gyration parameter still does not indicate that there is no optical activity in the crystals. Orig. art. has: 1 figure and 13 formulas.

ASSOCIATION: None

SUBMITTED: 07May63

ENCL: 00

SUB CODE: OP, SS

NR REF SOV: 004

OTHER: 000

Card 2/2

BOKUT', B.V.; KHATKEVICH, A.G.

Theory of the transformation of the frequency of light waves by  
a crystal. Dokl. AN BSSR 8 no.11:713-716 N '64.

(MIRA 18:3)

1. Institut fiziki AN BSSR.

L 3931-66 EWA(k)/FBD/EWT(1)/EPF(c)/EEC(k)-2/T/EWP(k)/EWA(m)-2/EWA(h) SCTB/LJP(c)  
WG/VW/GG

ACCESSION NR: AP5017692

UR/0250/65/009/006/0357/0359

AUTHORS: Khatkevich, A. G.; Bokut', B. V.; Stepanov, B. I.

TITLE: On the condition for phase matching in light-wave frequency conversion

SOURCE: AN BSSR. Doklady, v. 9, no. 6, 1965, 357-359

TOPIC TAGS: laser optics, ruby laser, refractive index, uniaxial crystal, frequency conversion

ABSTRACT: This is a continuation of an earlier paper (DAN BSSR v. 8, no. 11, 713, 1964), in which a general solution was given for the problem of light-wave frequency conversion by crystals and it was shown that in general, 14 polarization waves are produced when two waves are incident on a nonlinear crystal. The present paper considers the possibility of phase matching of all these waves, wherein the vector of the polarization-wave refraction coincides with the vector of the generated-wave refraction. The necessary condition for the phase matching is derived and is shown to be related with the ratio

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ACCESSION NR: AP5017692

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of the birefringence and the dispersion. The analysis shows that phase matching is possible for nine different polarization waves, and the wave with the higher frequency (polarization or pumping waves) should have a lower refractive index. The possibility of phase matching in a uniaxial crystal is further considered, and it is shown that in the case when the ordinary beam from a ruby laser operating at 6934 Å is mixed with the extraordinary beam from a  $\text{CaWO}_4:\text{Nd}^{3+}$  laser (10582 Å) in a KDP crystal, phase matching takes place at an angle of  $54.6^\circ$ , whereas in the case when only the ordinary beams of these lasers are mixed the matching takes place at  $42.6^\circ$ . The authors thank B. A. Sotskiy and A. M. Goncharenko for a discussion of the results. This report was presented by B. I. Stepanov. Orig. art. has: 9 formulas.

ASSOCIATION: Institut fiziki AN BSSR (Physics Institute AN BSSR) 14,55

SUBMITTED: 30Apr64

ENCL: 00

SUB CODE: OP

NR REF SOV: 001

OTHER: 004

Card 2/2

L 33551-66 EWT(1) GG

ACC NR: AP6015597

SOURCE CODE: UR/0368/66/004/005/0455/0458

AUTHOR: Bokut', B. V.; Khatkevich, A. G.

ORG: none

TITLE: Mixing of electromagnetic waves by a nonlinear crystal

SOURCE: Zhurnal prikladnoy spektroskopii, v. 4, no. 5, 1966, 455-458

TOPIC TAGS: nonlinear effect, electromagnetic wave interference, light interference, light transmission, frequency conversion

ABSTRACT: The authors calculate the coefficients of conversion of radiation in different cases of mixing of light waves in KDP and ADP single crystals. The light waves have different frequencies, and are normally incident. Expressions are given for the conversion coefficient, for the transmission coefficients of the ordinary and extraordinary components of the incident waves, and for the dependence of a function proportional to the conversion coefficient on the divergence of the beam and on the thickness of the crystal. A table of the results shows that the transformation coefficient for the emission at the difference frequency is smaller than for the emission at the sum frequency. The main reason is that the intensity of the transformed radiation is proportional to the square of the frequency. Orig. art. has: 1 figure, 14 formulas, and 1 table.

SUB CODE: 20/ SUBM DATE: 06Jul65/ ORIG REF: 004/ OTH REF: 004

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UDC: 535.44

ACC NR: AP7003280

SOURCE CODE: UR/0250/66/010/012/0933/0935

AUTHOR: Savkin, A. Ye.; Lugina, A. S.; Bokut', B. V.

ORG: Institute of Physics, AN BSSR (Institut fiziki AN BSSR)

TITLE: Observation of generation at the sum frequency of the emissions from a ruby and a neodymium laser in a KDP crystal

SOURCE: AN BSSR. Doklady, v. 10, no. 12, 1966, 933-935

TOPIC TAGS: ruby laser, neodymium laser, laser emission, frequency mixing, frequency converter

ABSTRACT: The authors were able to mix in a KDP crystal the ordinary wave of a ruby laser ( $\lambda_R = 6943 \text{ \AA}$ ) and the extraordinary wave of a neodymium laser ( $\lambda_{Nd} = 10600 \text{ \AA}$ ) and produce emission at the sum frequency in the phase-matching direction. Both lasers were fed from a single capacitor bank and the two were pumped individually by a single IFP-2000 lamp. The ruby and neodymium lasers generated 3.8 J and 2.65 J at a pump voltage of 2800 v, corresponding to 1760 J energy for each pump lamp. The method of obtaining both temporal and spatial coincidence of the generated radiations and parallelism of their beams is described. Generation from the KDP crystal at the sum frequency was observed throughout the duration of the ruby laser emission. This report was presented by Academician AN BSSR B. I. Stepanov. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 07Jul66/ ORIG REF: 003/ OTH REF: 001

Cord 1/1.

BOKUT', D.A.

Kaplanskii's problem. Sib. mat. zhur. 4 no.5:1184-1185 S-3  
'63. (MIRA 16:12)

BOKUT', L.A.

Imbedding of Lie algebras in algebraically closed Lie algebras.  
Alg. i log. i no.2:47-53 '62 (MIRA 18:1)

BOKUT', L.A.

Representation of Lie algebras in radical rings. Alg. i log. 1 no.5:3-  
29 '62. (MIRA 18:1)

BOKUT', L.A.

Imbedding of algebras into algebraically closed algebras. Dokl.  
AN SSSR 145 no.5:963-964 '62. (MIRA 15:8)

1. Predstavleno akademikom A.I.Mal'tsevim.  
(Lie algebras)

BOKUT', L.A.

Base of free polynilpotent Lie algebras. Alg. i log. 2 no.4:  
13-19 '63. (MIRA 17:8)

BOKUT', L.A.

Some imbedding theorems for rings and semigroups. Part 1.  
Sib. mat. zhur. 4 no.3:500-518 My-Je '63. (MIRA 16:6)  
(Groups, Theory of) (Rings (Algebra))